

Appl. No. *To Be Assigned*; Group Art Unit: *To Be Assigned*; Inventors: Michelle M. Hanna.; Tel: 202.371-2600  
**Title: Molecular Detection Systems Utilizing Reiterative Oligonucleotide Synthesis**

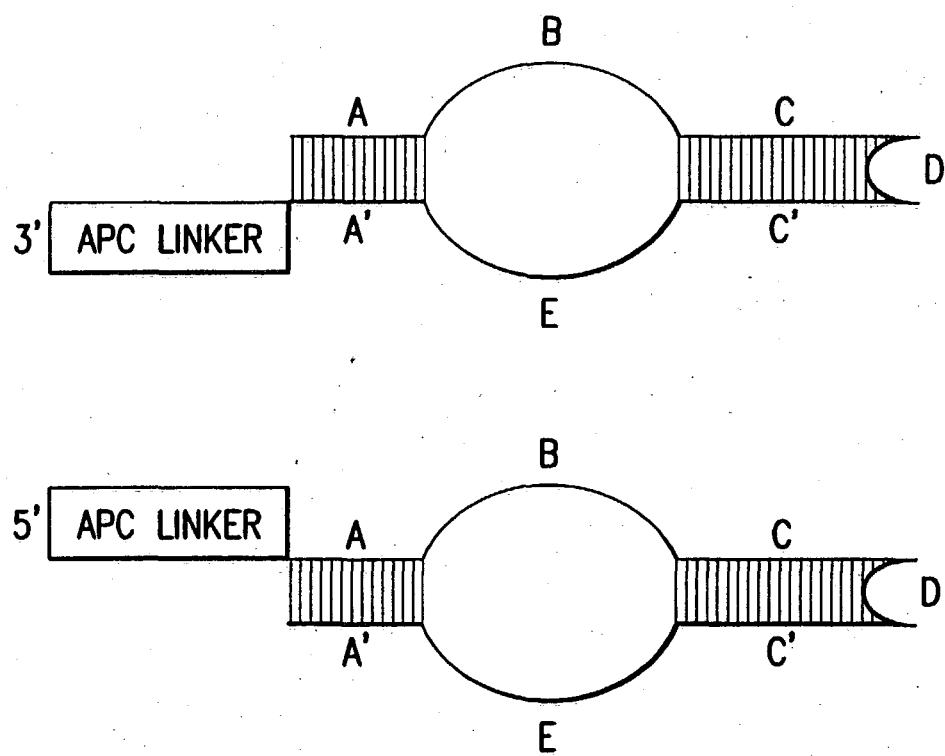
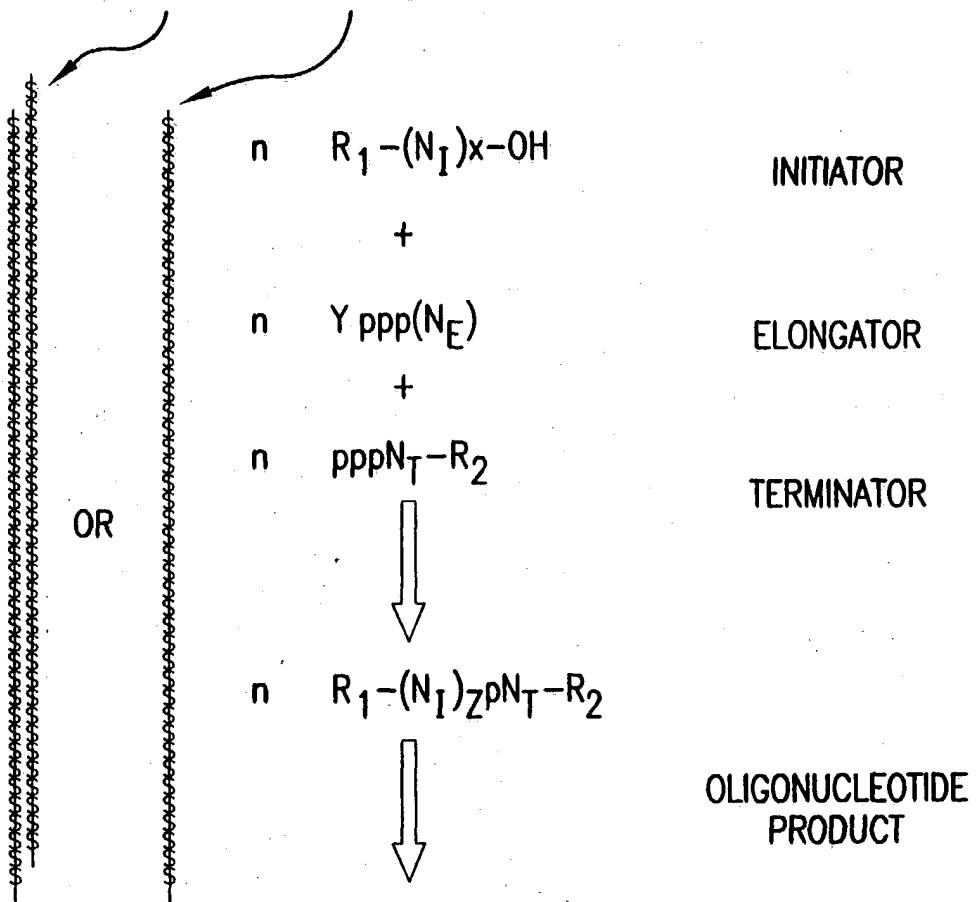


FIG. 1

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DOUBLE STRANDED OR SINGLE STRANDED DNA OR RNA



MULTIPLE SIGNALS

FIG.2

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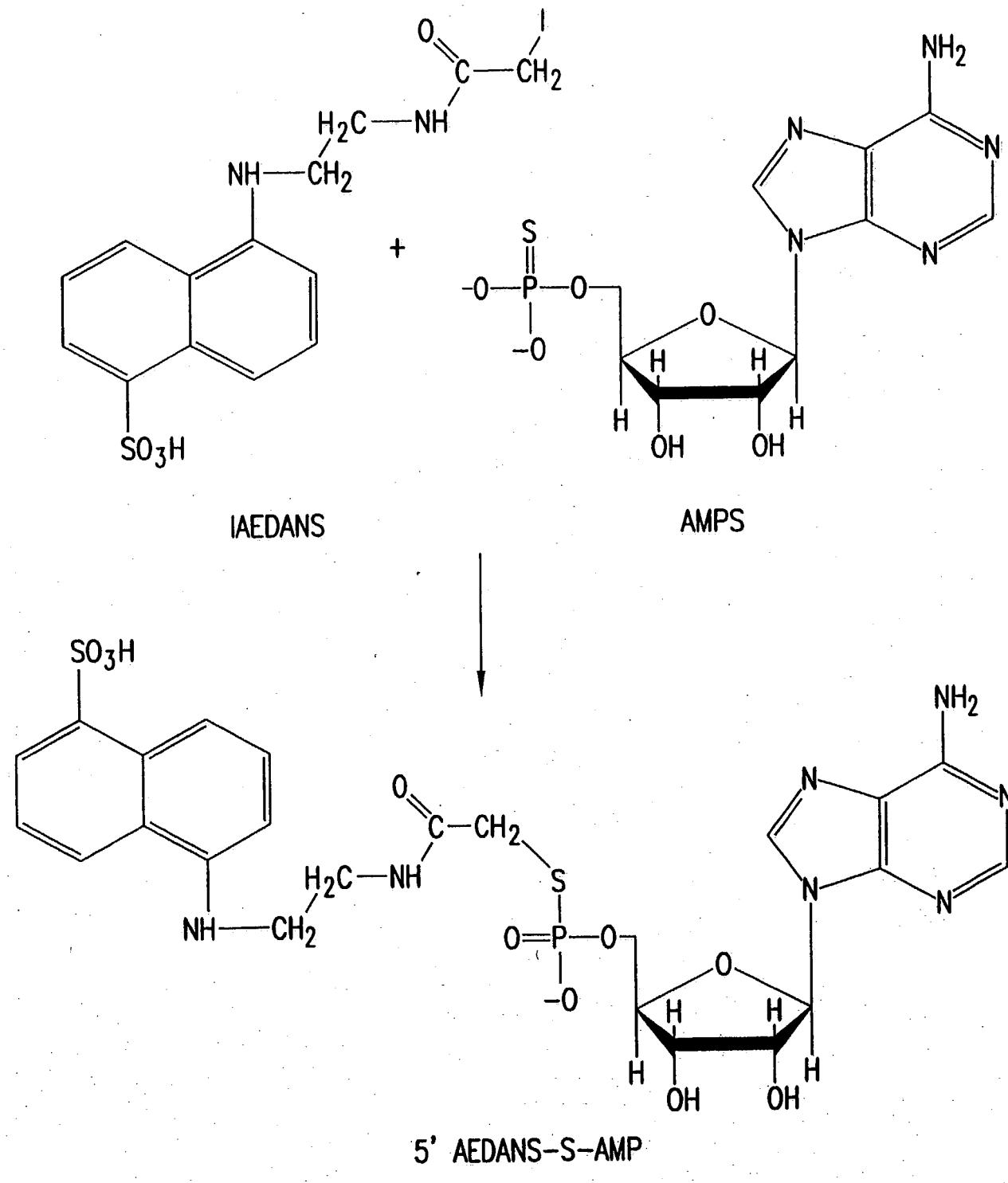


FIG.3

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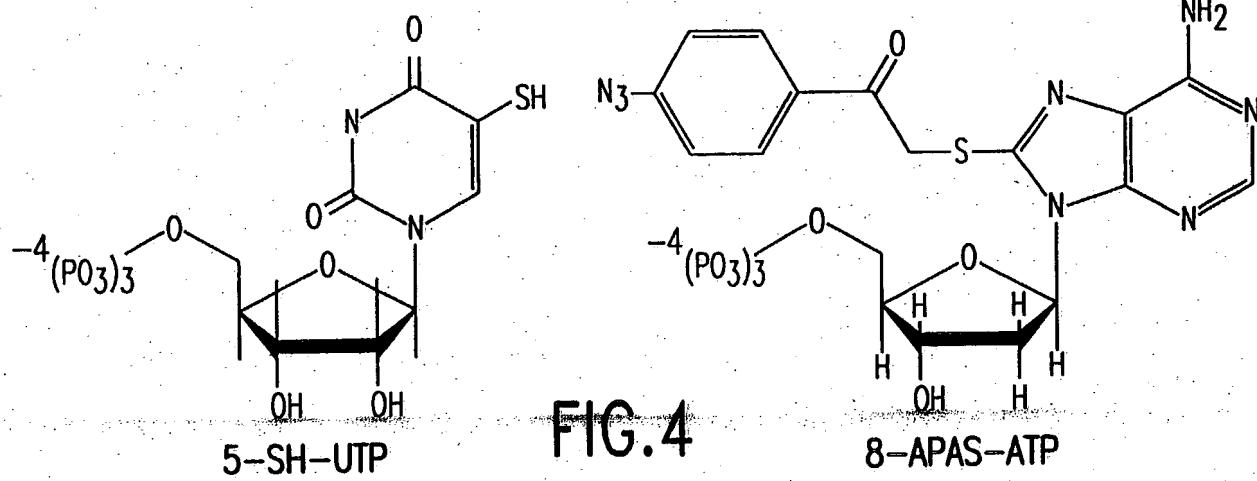
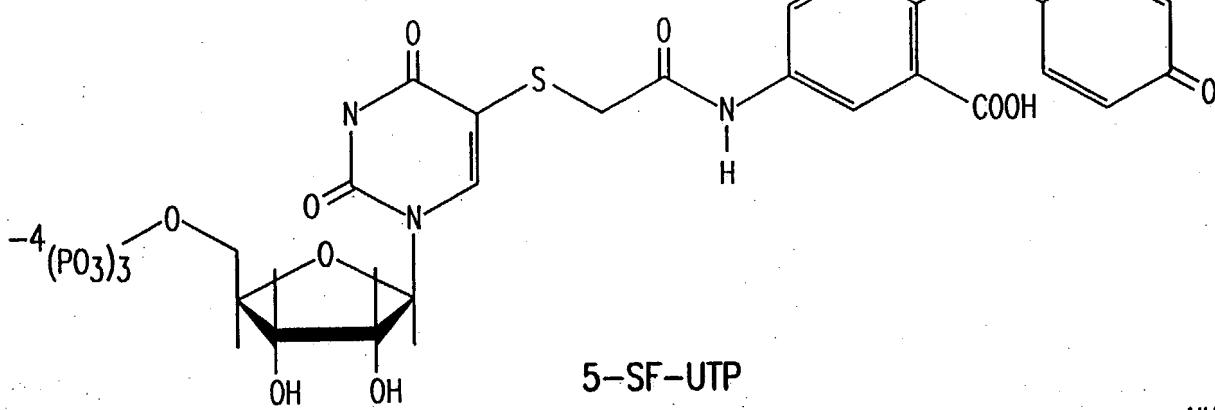
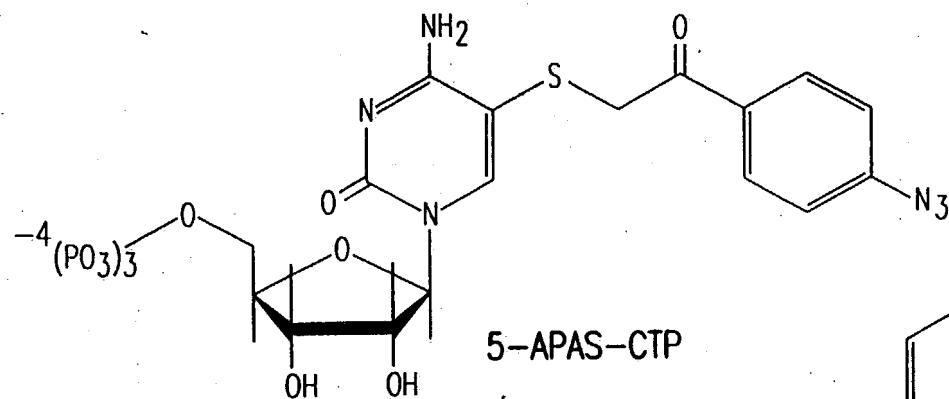
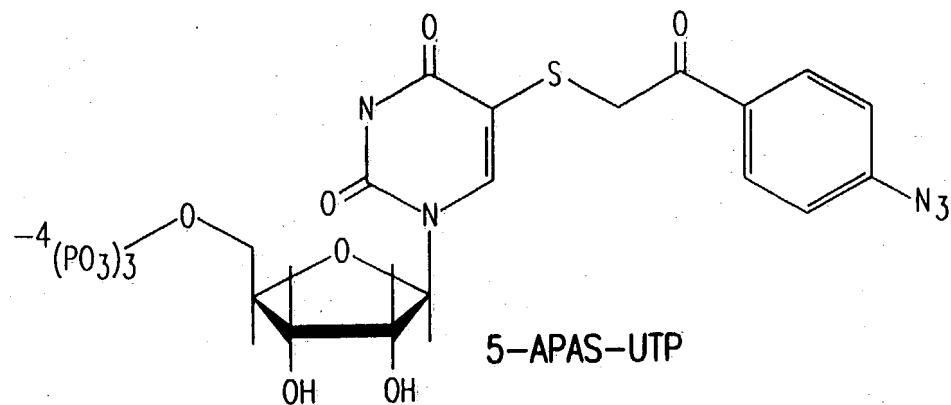
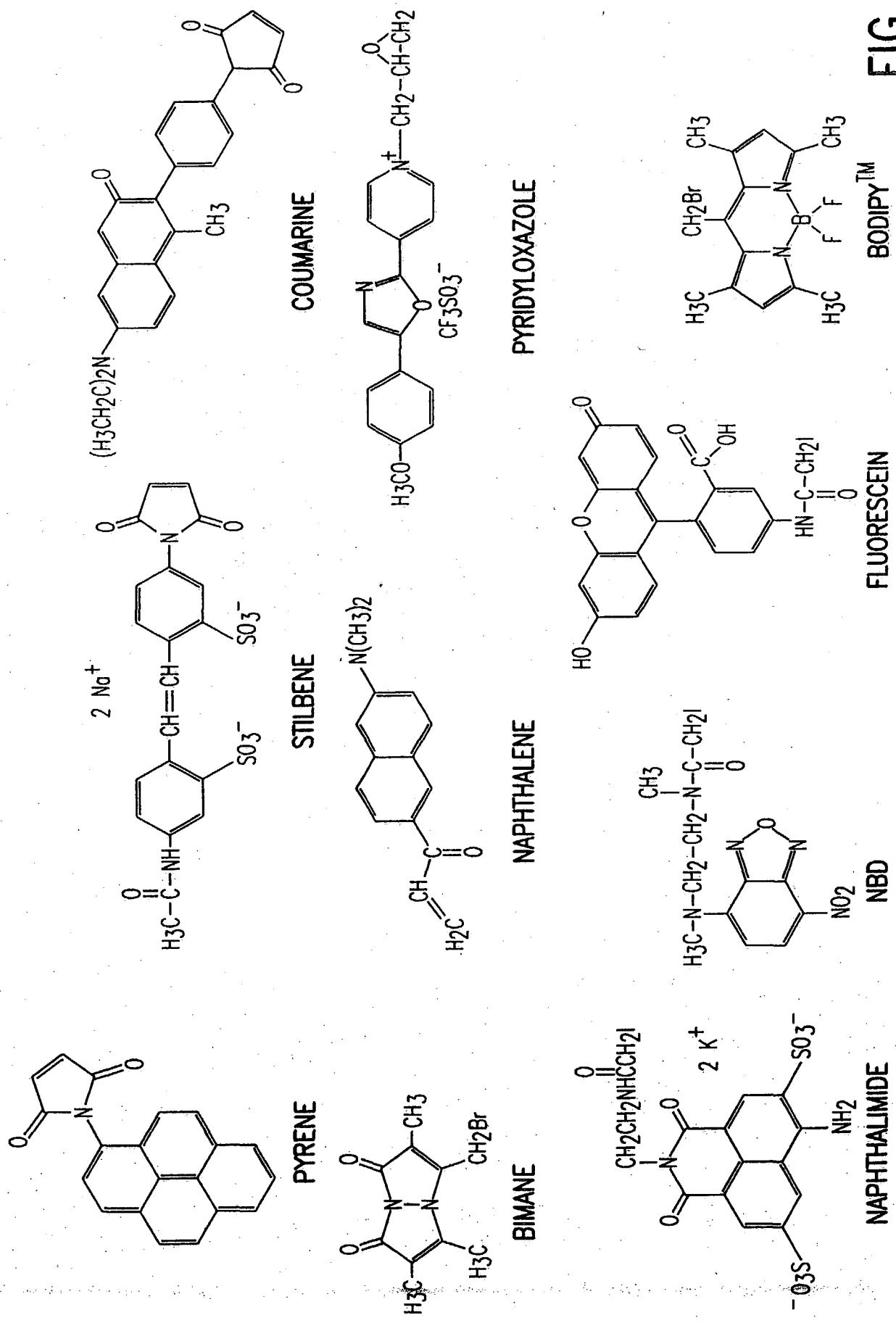


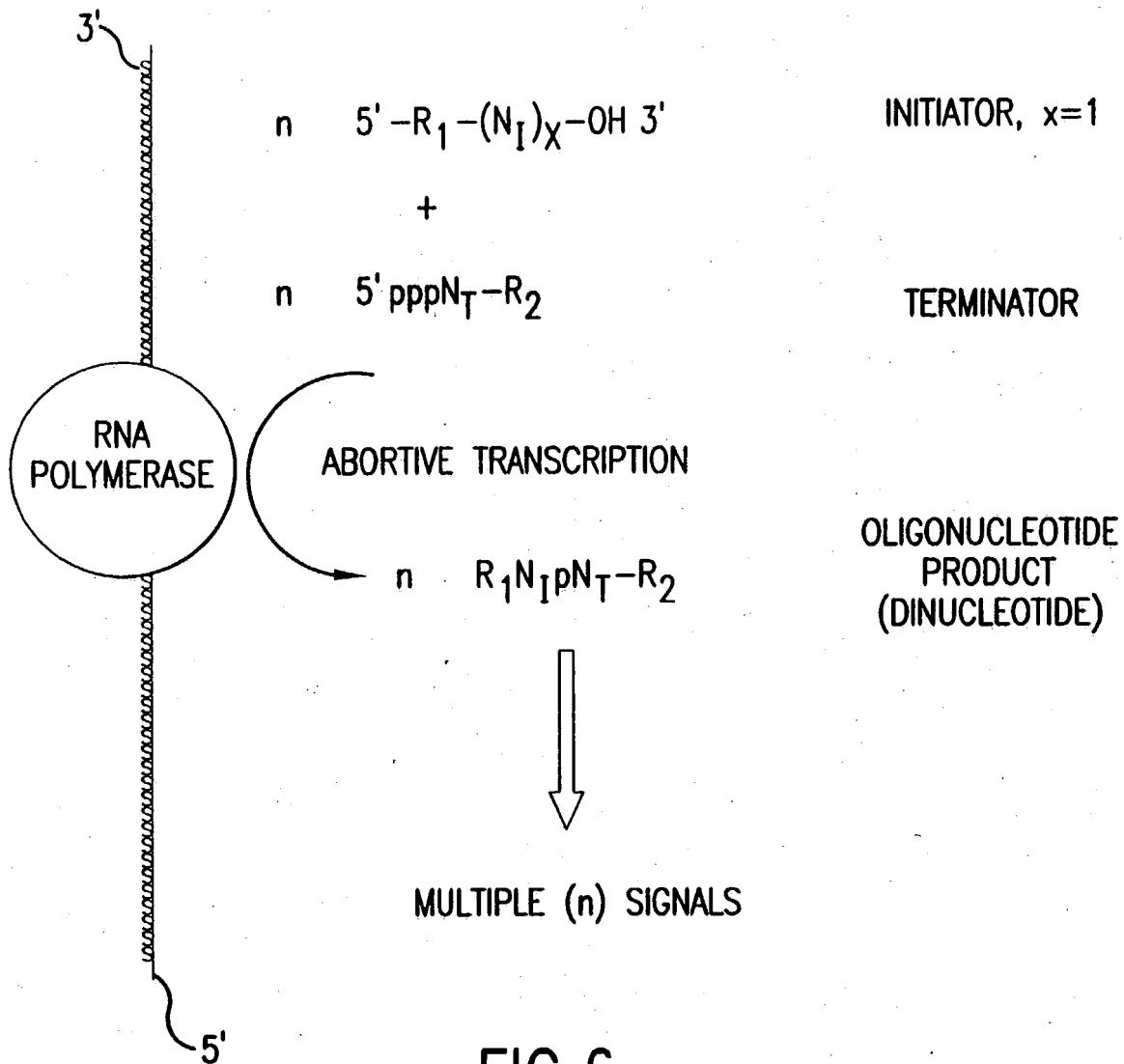
FIG. 4

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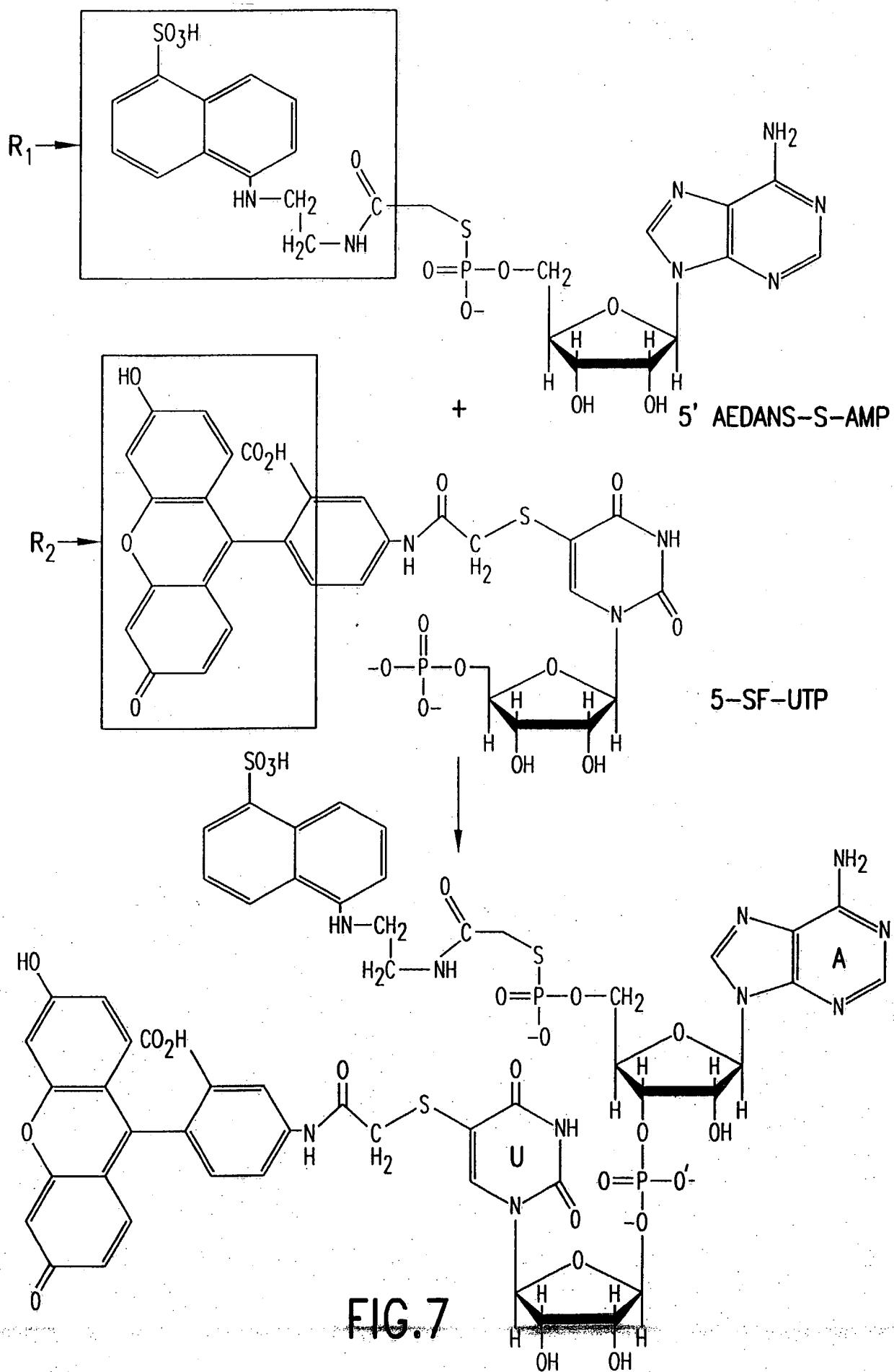
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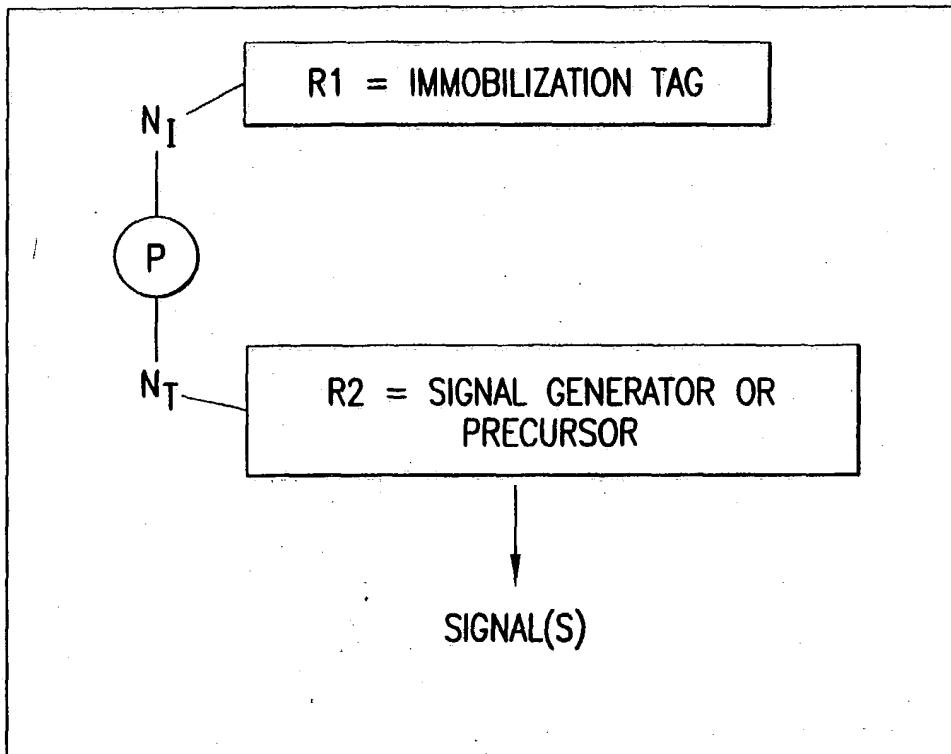


FIG.8

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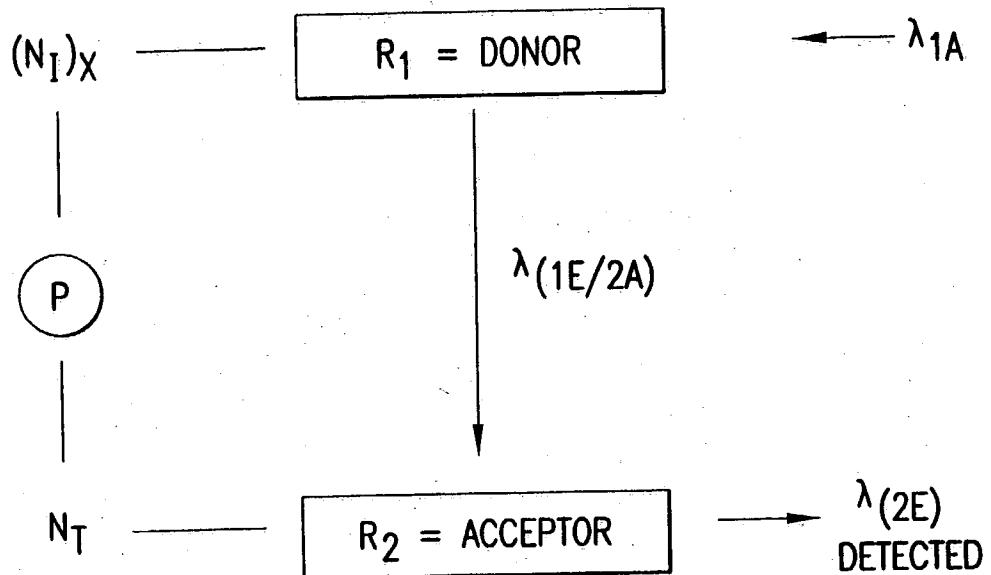


FIG.9

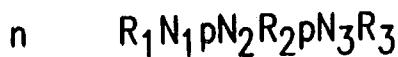
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 Reiterative Oligonucleotide Synthesis



+



WHERE  $N_3$  IS A TERMINATOR



EXAMPLE

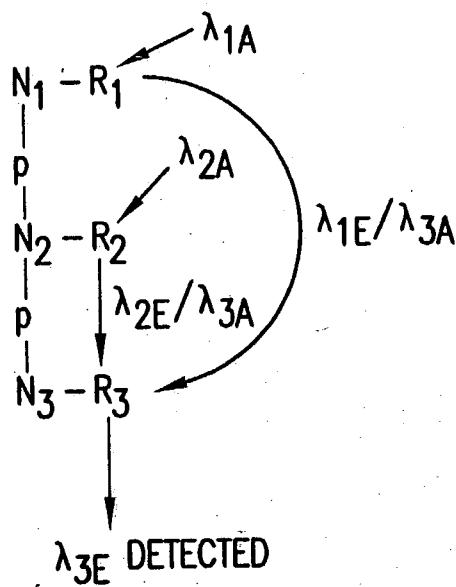


FIG. 10

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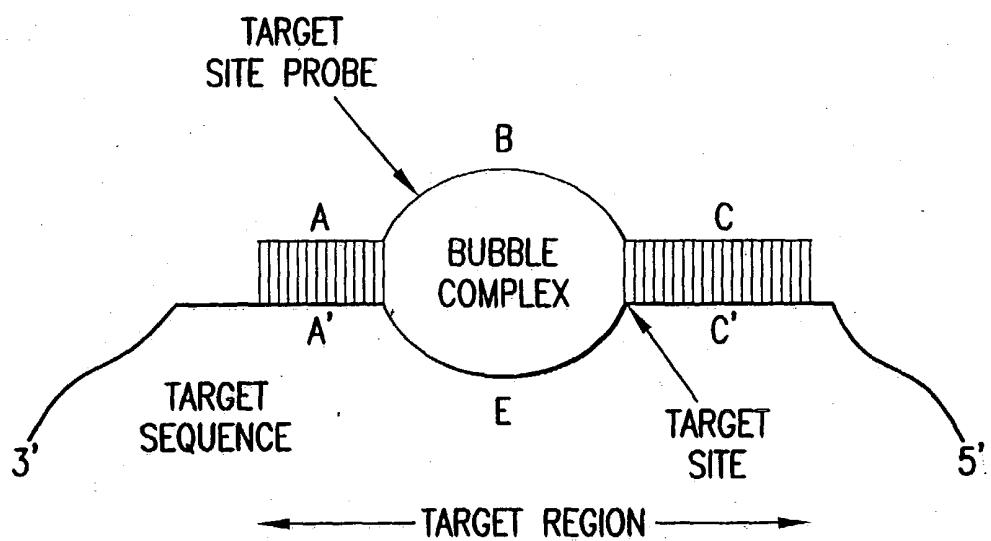


FIG. 11

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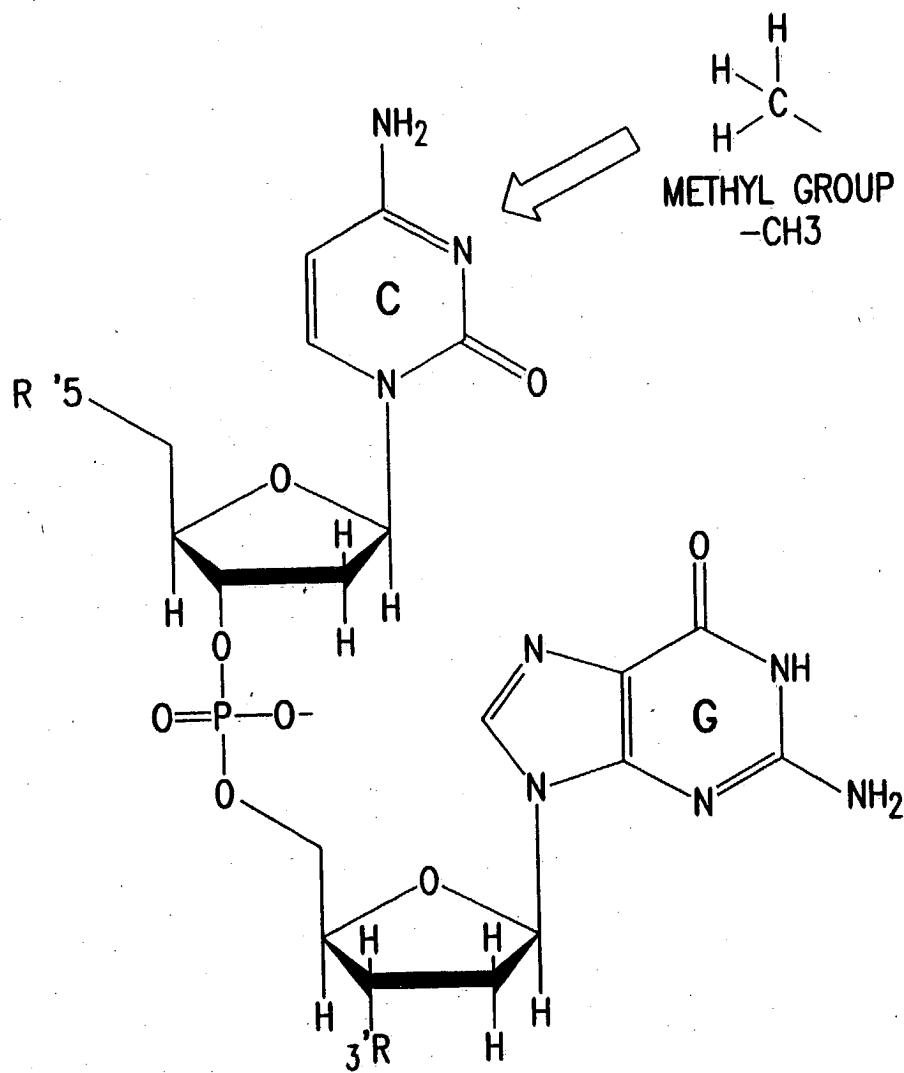


FIG.12

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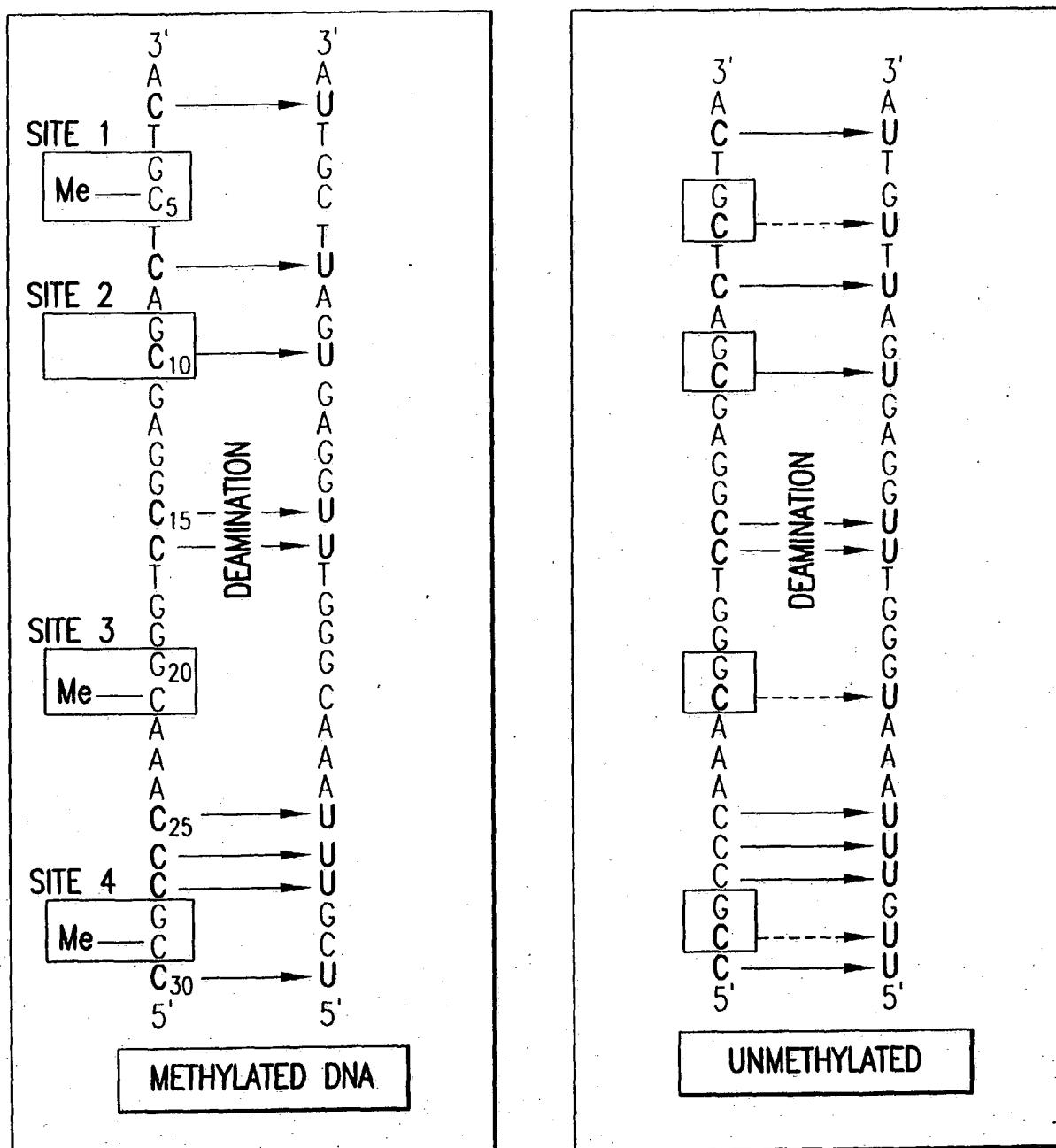


FIG.13

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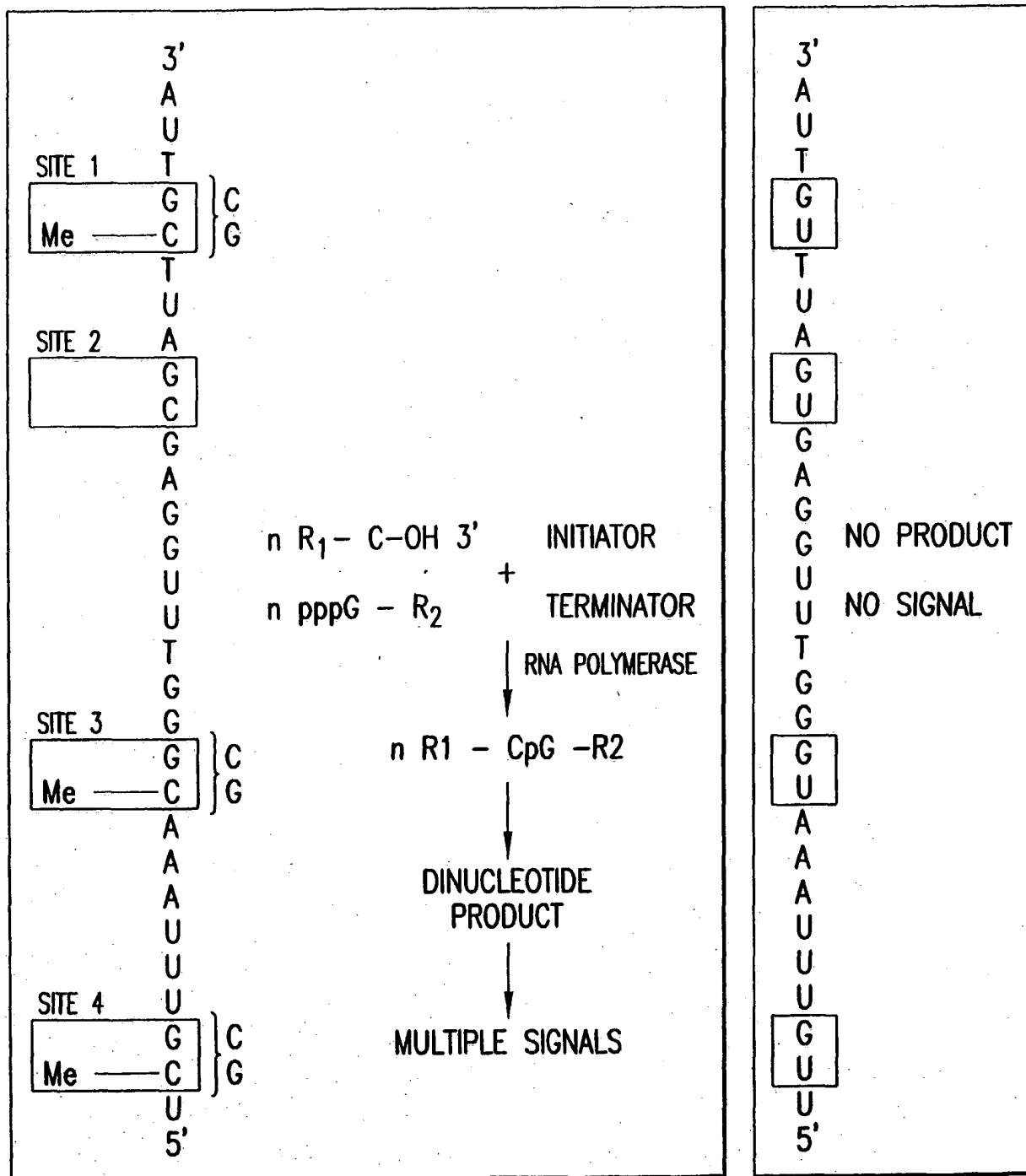


FIG.14

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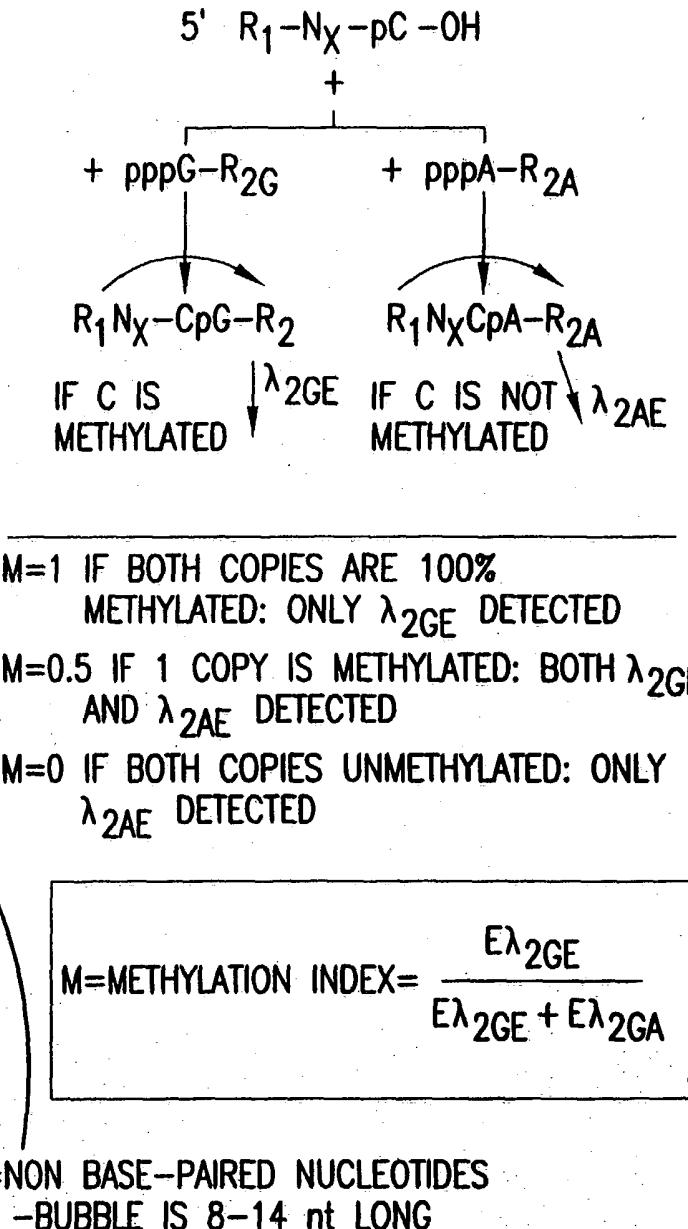
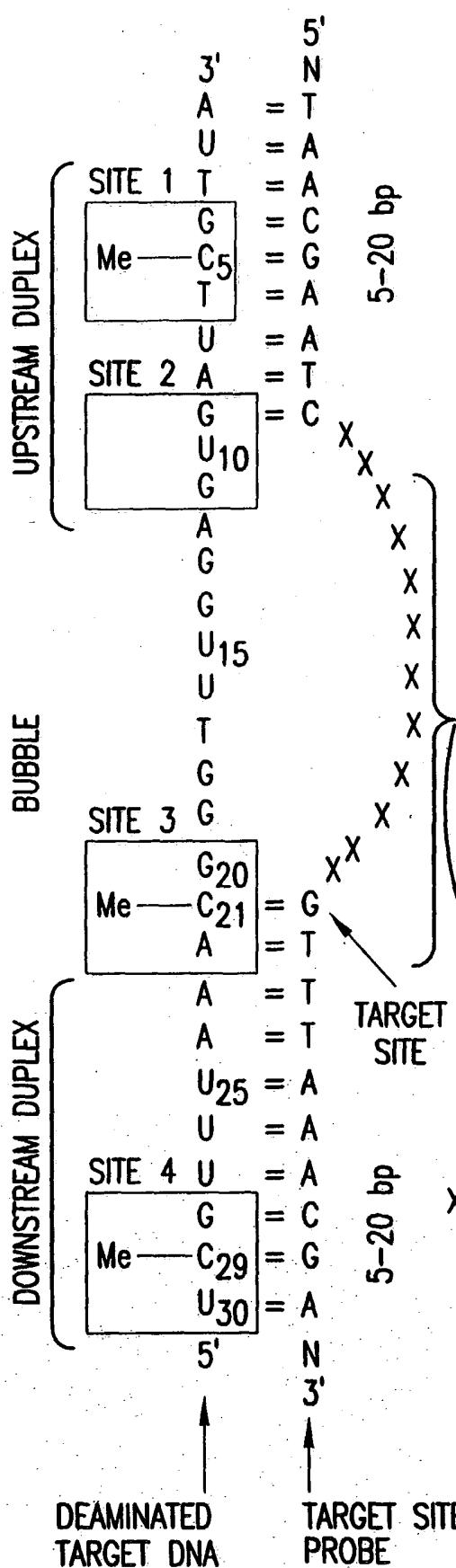


FIG.15

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Title: Molecular Detection Systems Utilizing Reiterative Oligonucleotide Synthesis

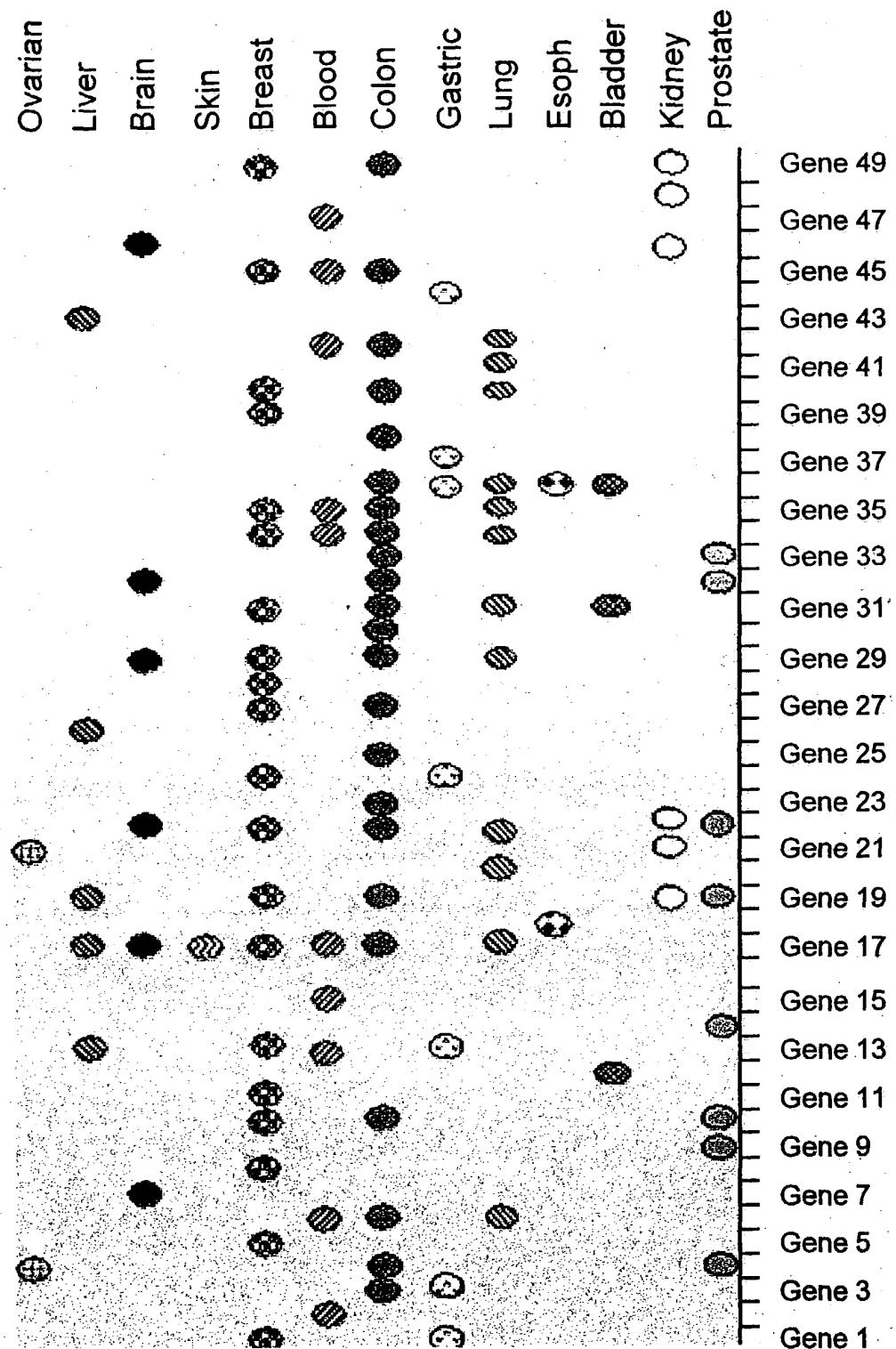
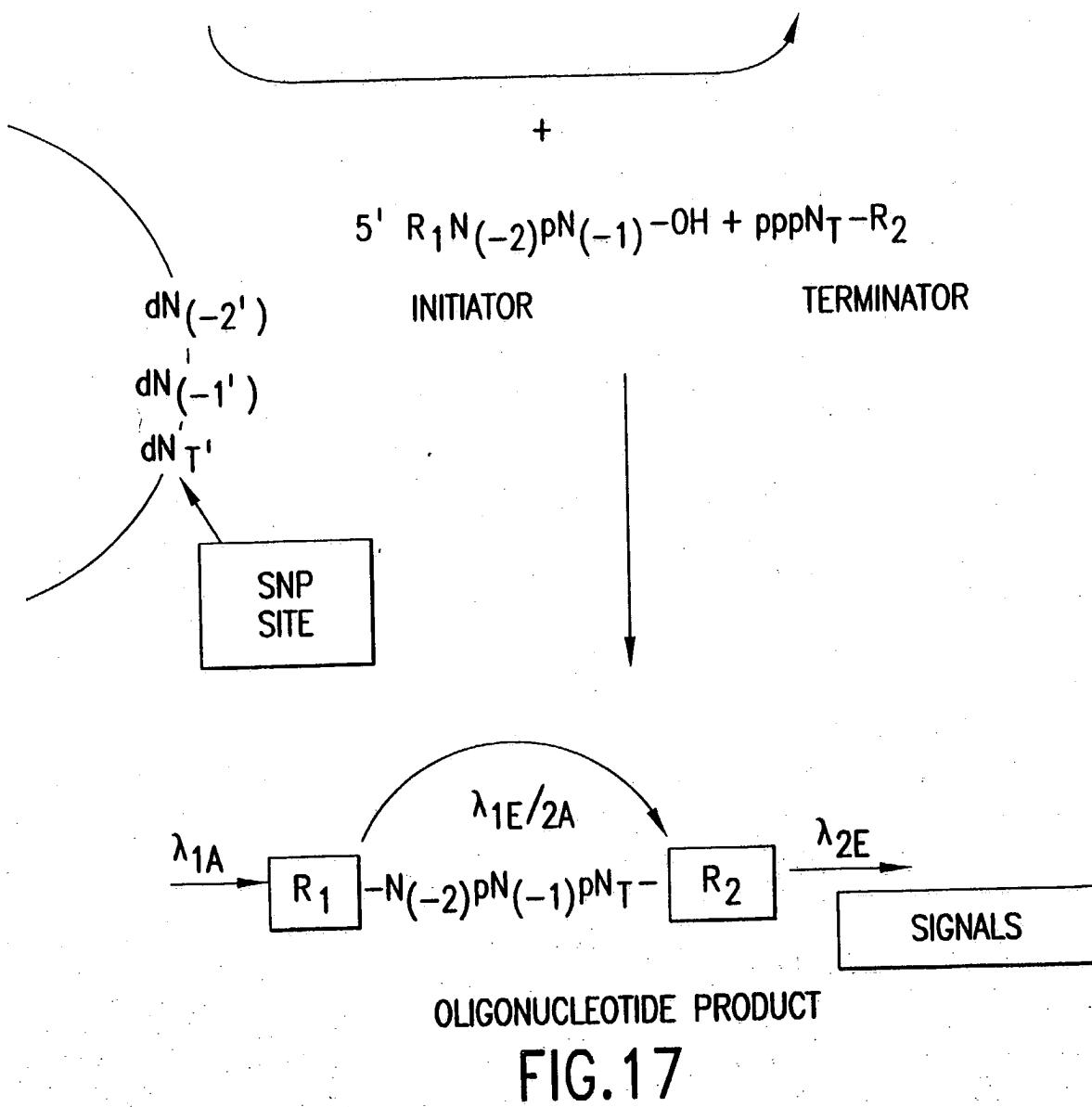


FIG. 16

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Target SNP = 3'---- dN (-2') p dN (-1') p dN T'---- 5'



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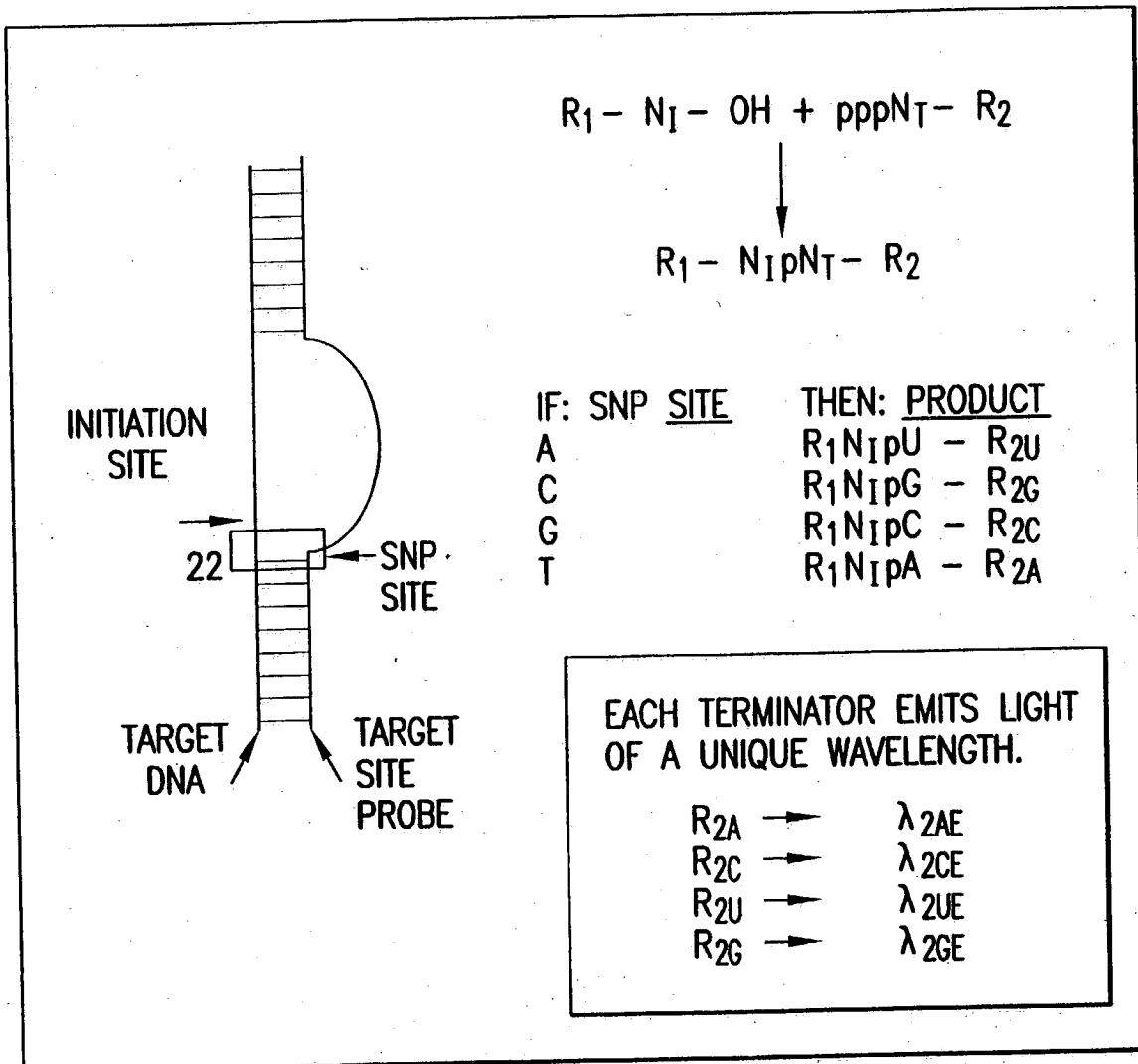


FIG.18

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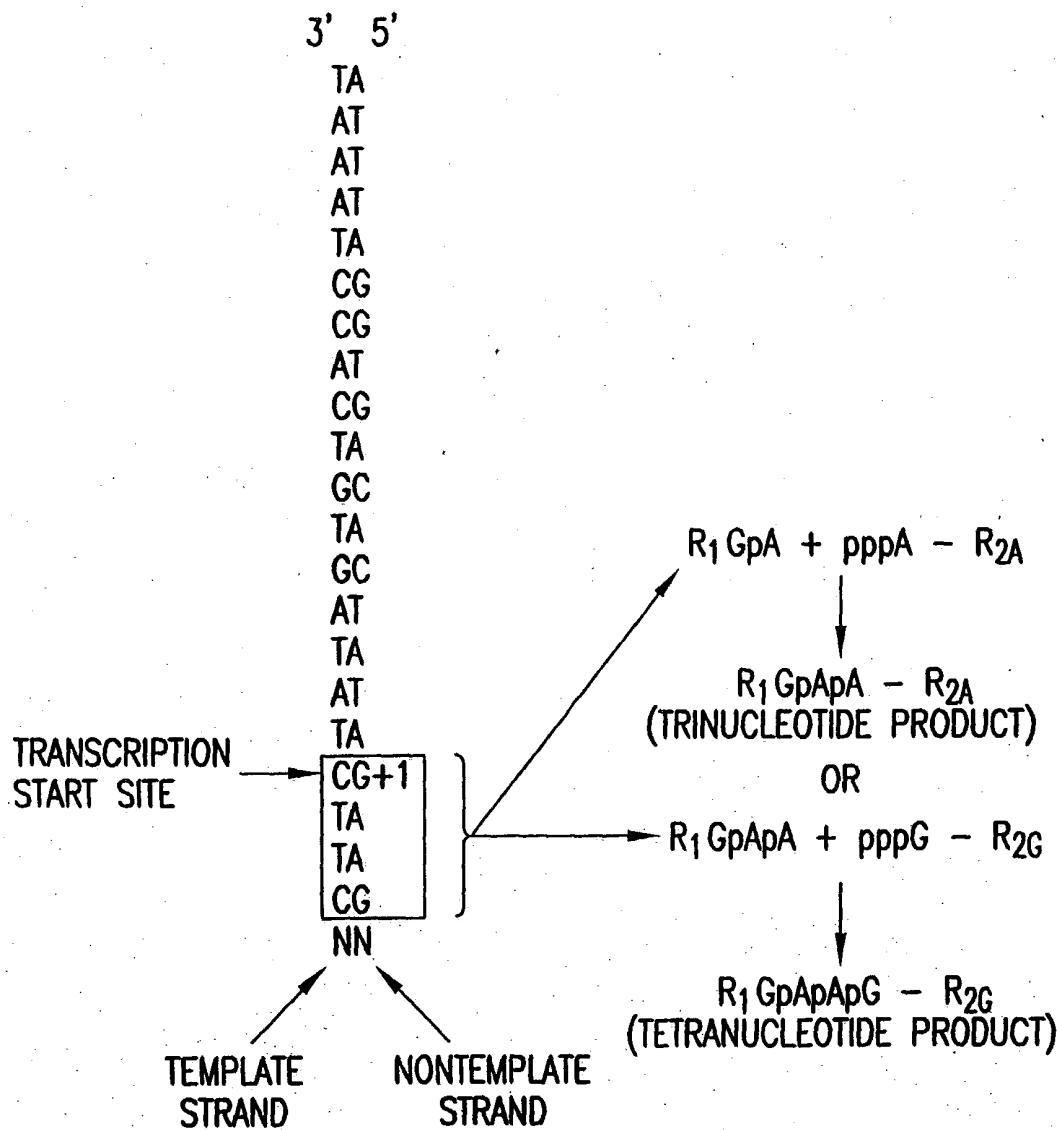
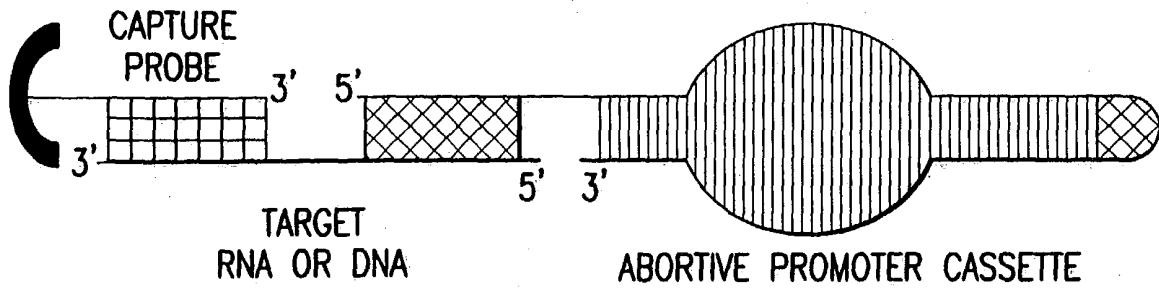


FIG.19

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Title: Molecular Detection Systems Utilizing Reiterative Oligonucleotide Synthesis

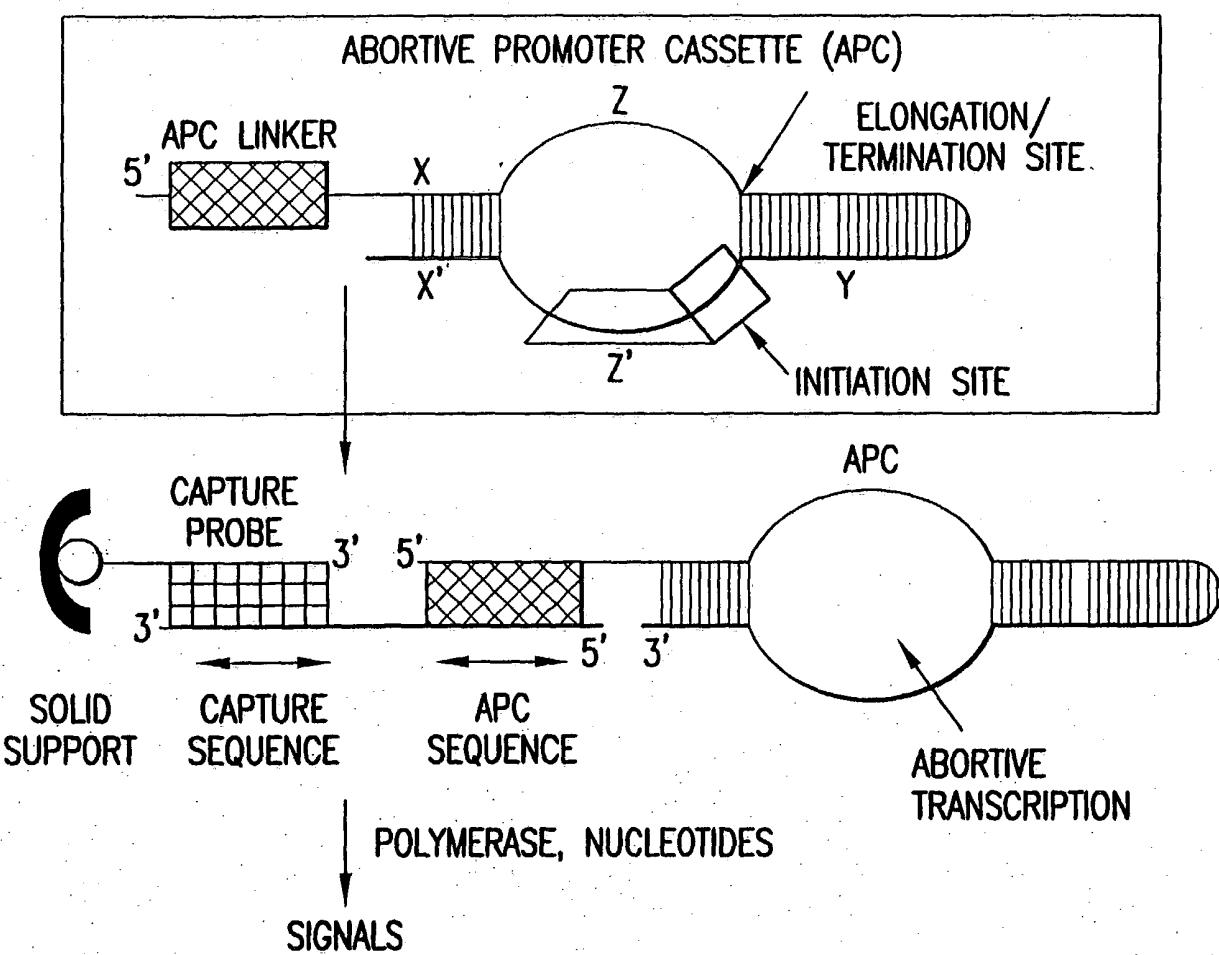
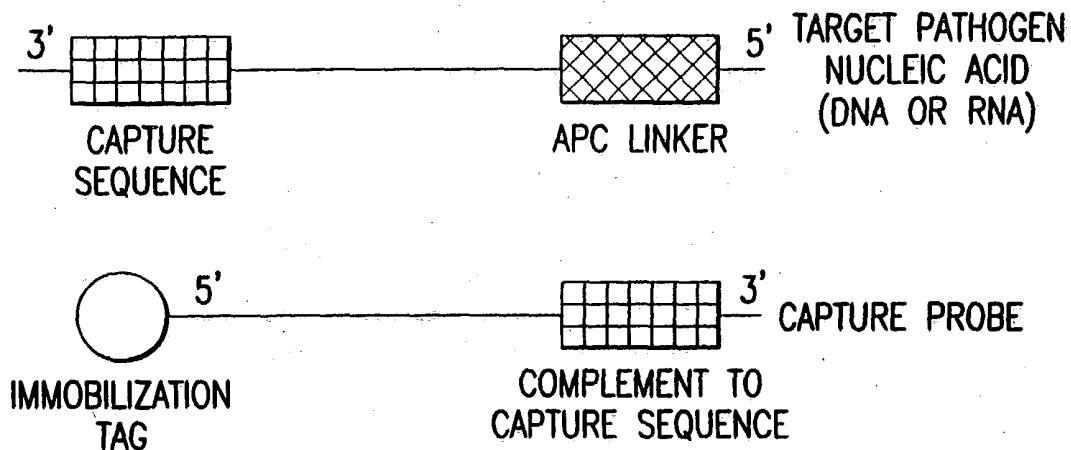


FIG.20

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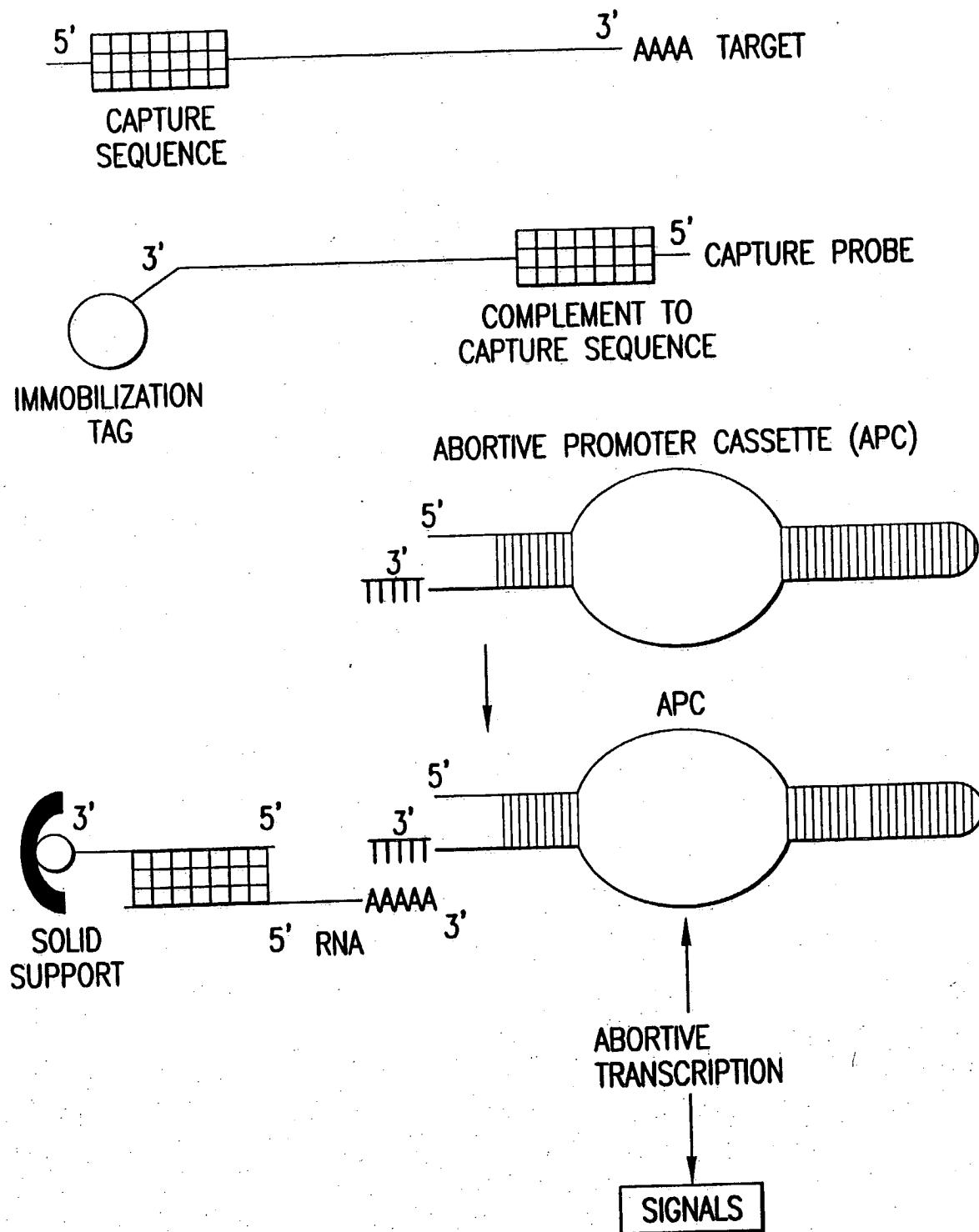


FIG.21

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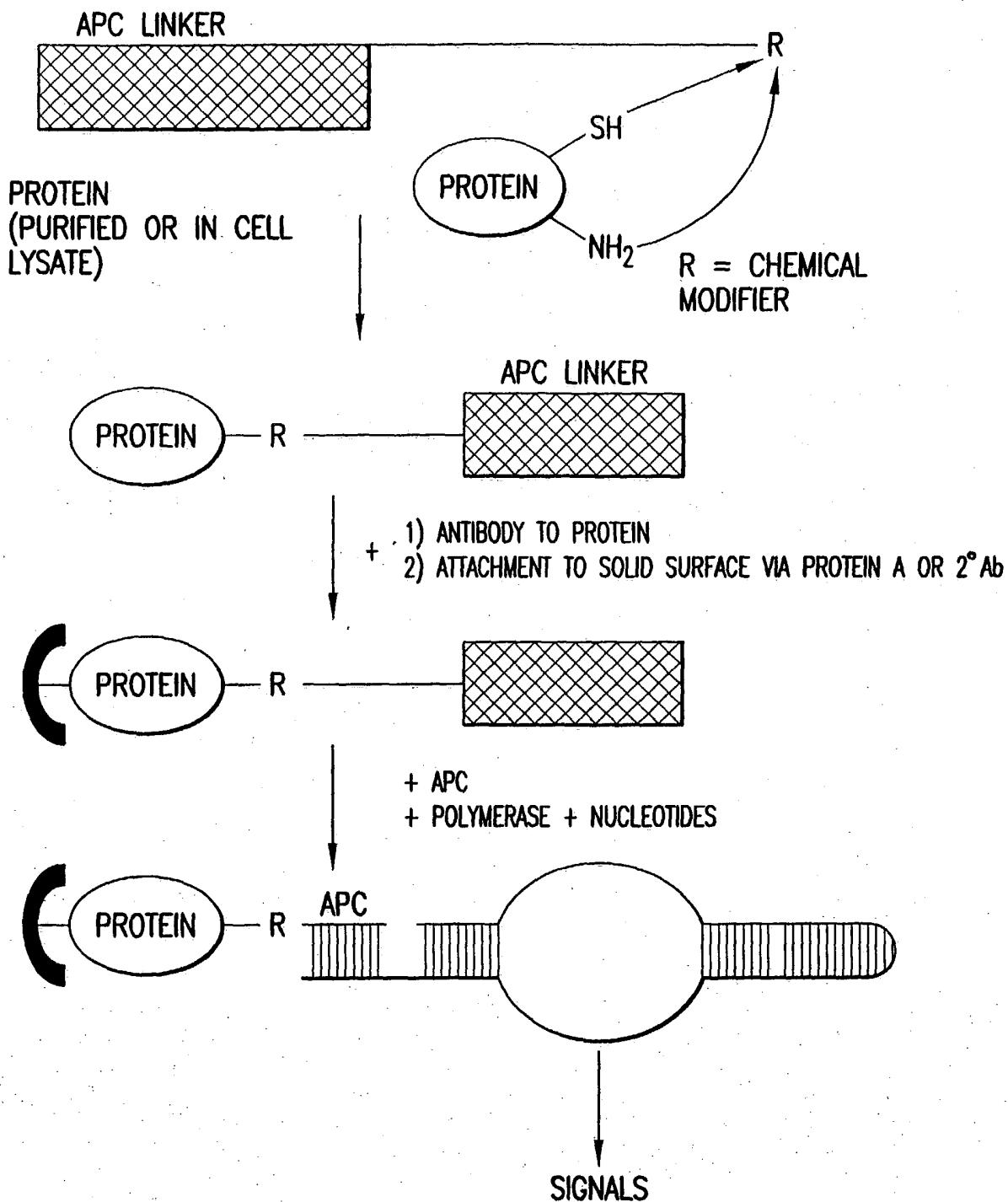


FIG.22

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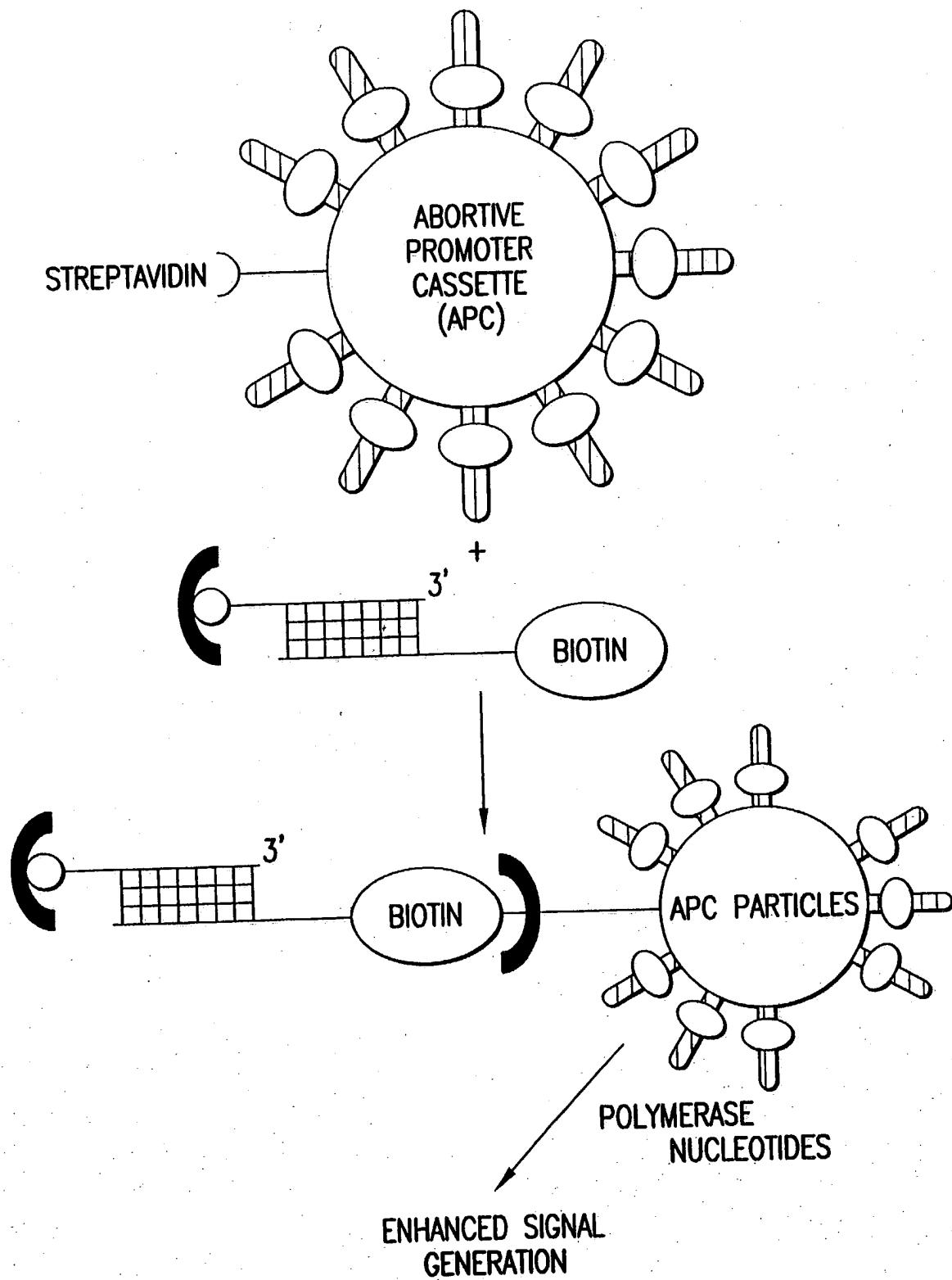
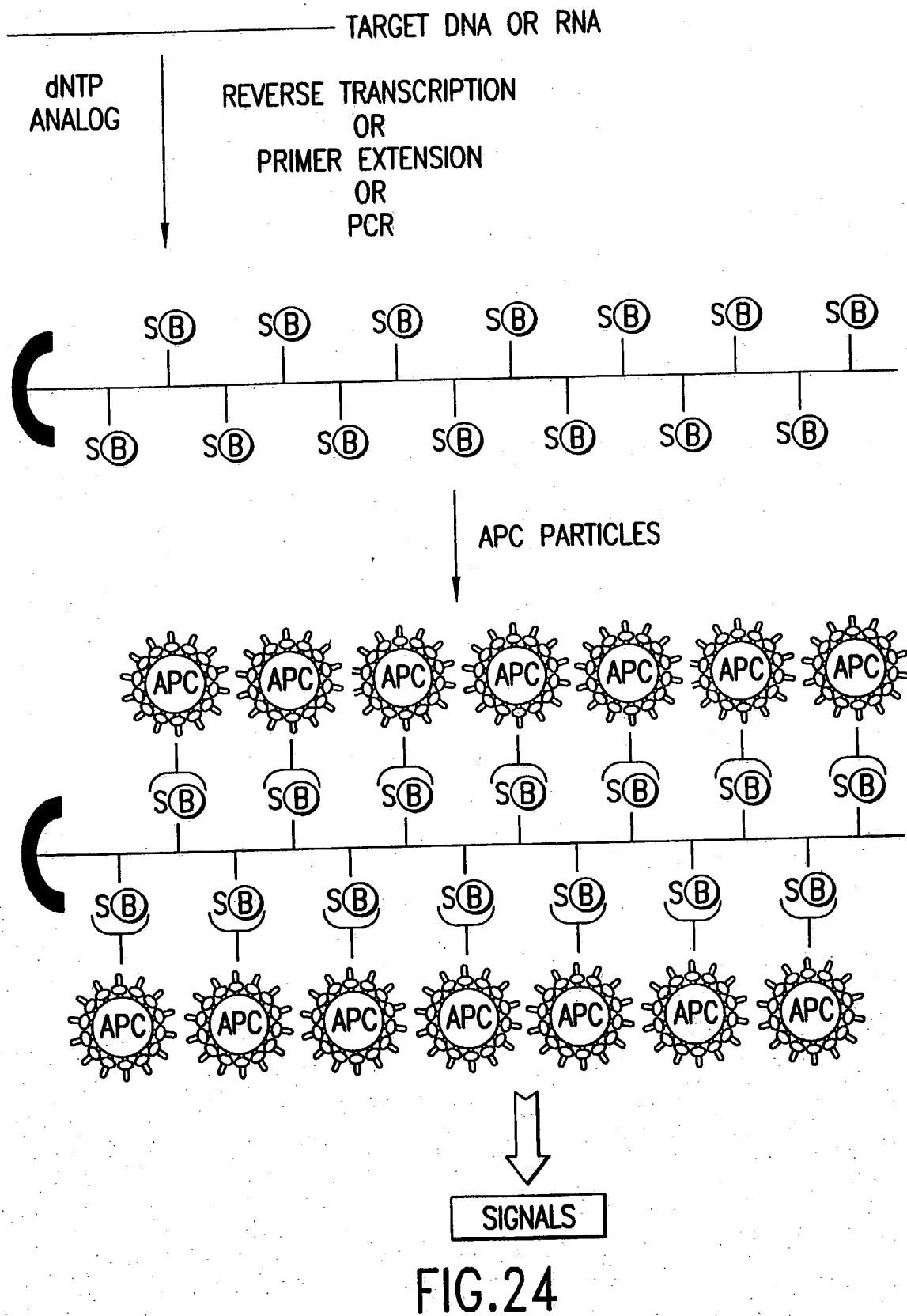


FIG.23

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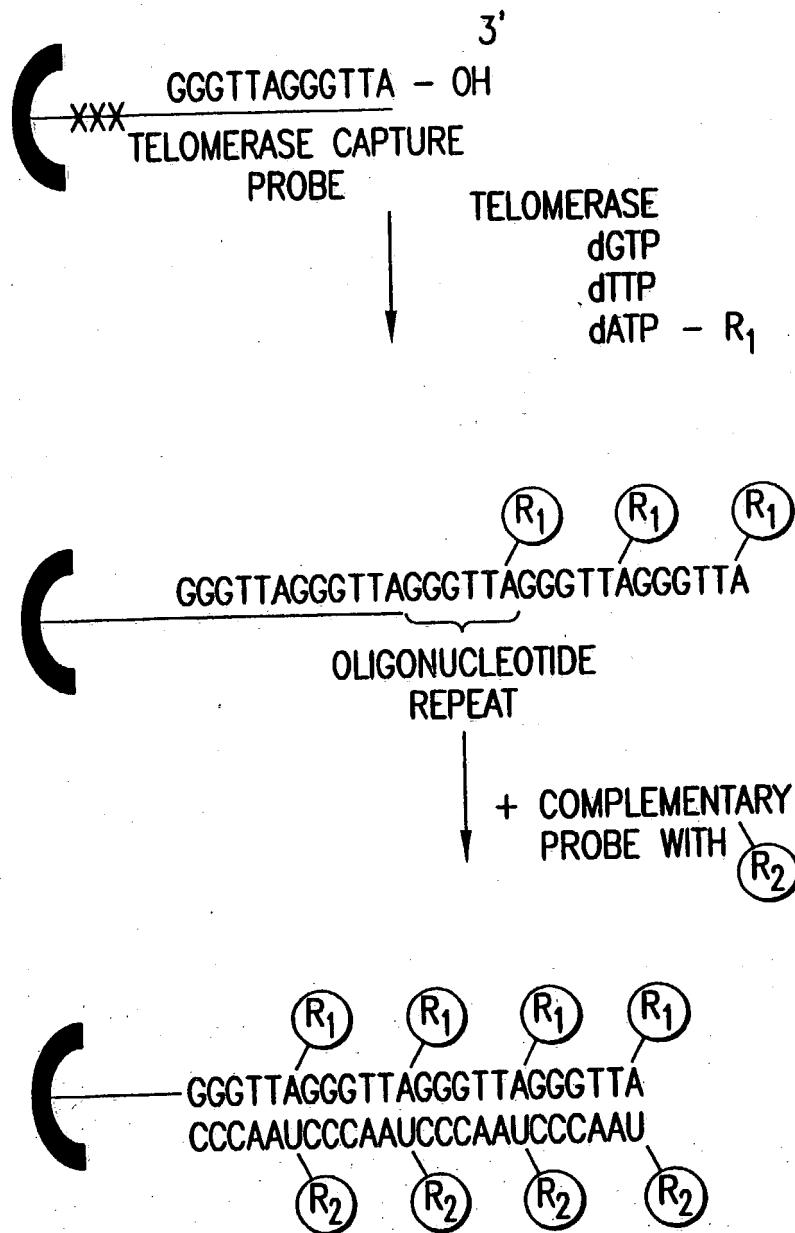
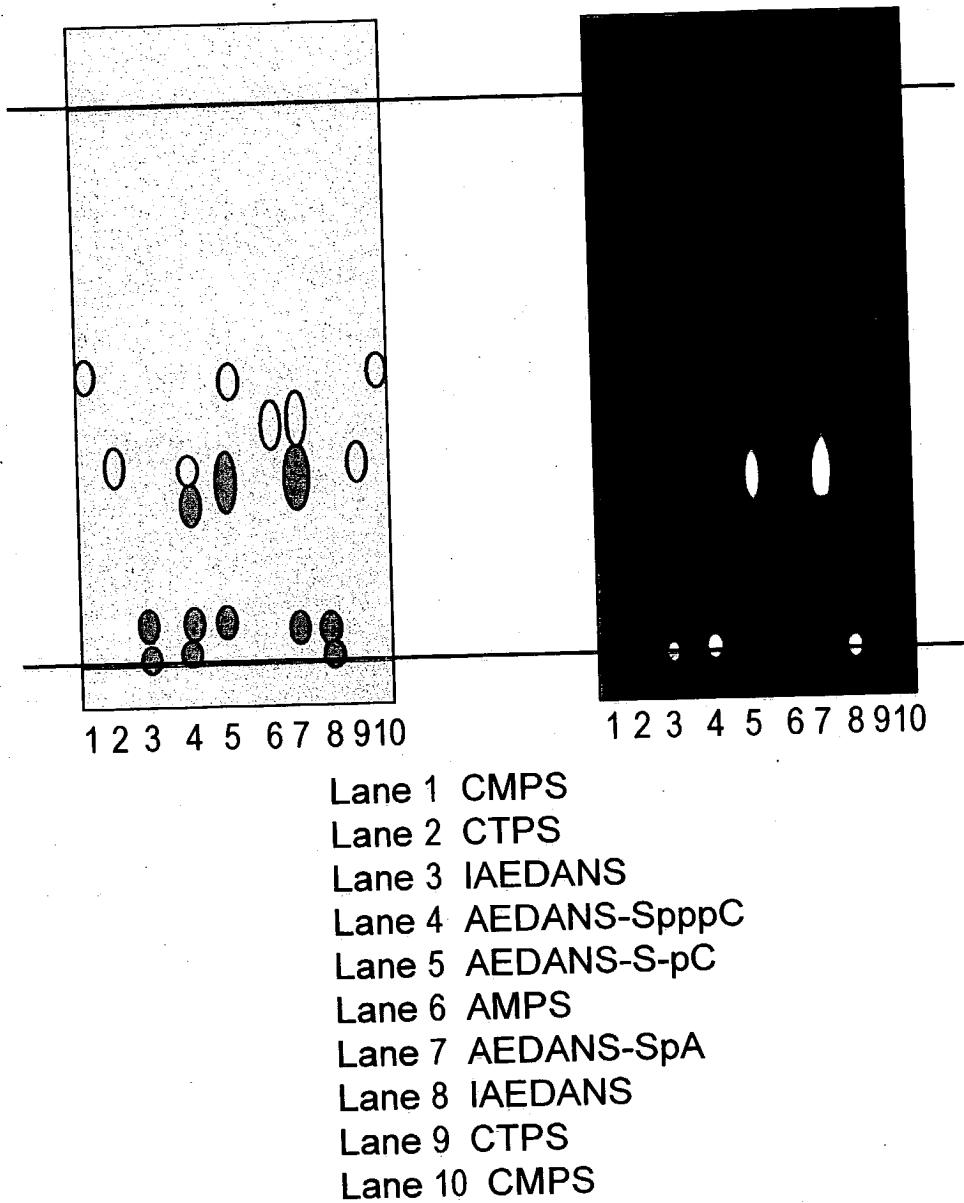


FIG.25

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**FIG. 26**

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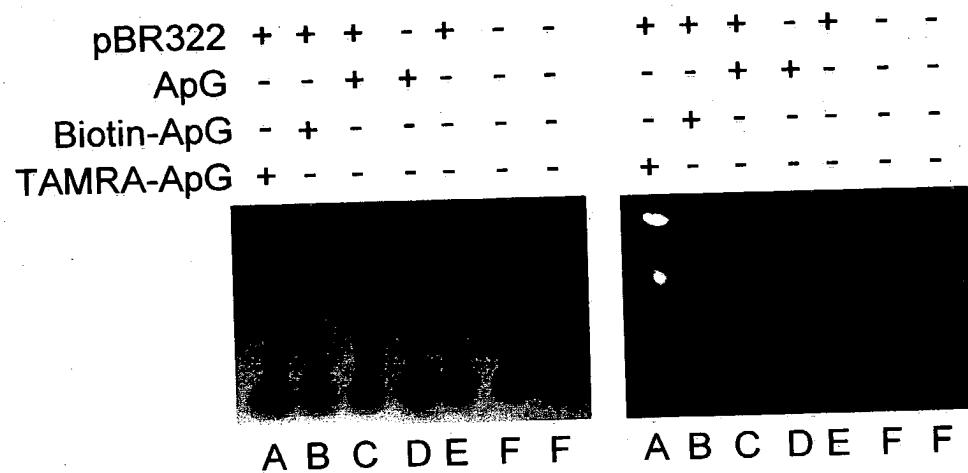
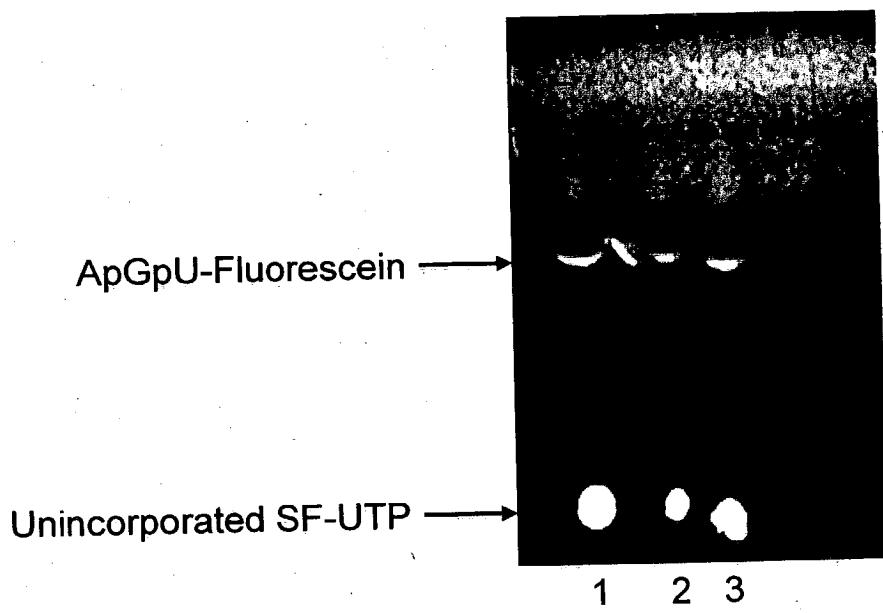


FIG.27

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**FIG.28**

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ATATACTGGGTCTACAAGGTTAACGTCAACCAGGGATTGAAATATAACTTTAAAACAGAGCTGGATTATCCAGT  
 AGGCAGATTAAGCATGTGCTTAAGGCATCAGCAAAGCTGAGCAATCCATTTCAAAACGTAGTACATGTTT  
 TGATAAGCTAAAAAGTAGTAGTCACAGGAAAATTAGAACACTTTACCTCCCTGCCTGGTTATACTCTTAGT  
 GCTGTTAACCTTCTTGTAAAGTGAGGGTGGGAGGGTGCCATAATCTTCAGGGAGTAAGTCTTCTT  
 GGTCTT  
 TGGCGCGATCTCGGCTCACTGCAACCTCCGCCTCTCCTGGTTCAAGCGATTCTCCTACATCAGCCTCCGA  
 GTAGCTGGGATTACAGGCATGCGCCACCAAGCCCCGTAATTGTATTAGTAGAGACAGGGTTTGC  
 CATGTTGGTCAGGCTTGTCTCGAACCTCCGCCTCAGGTGATCCGCTGTCTCCGCCTCCAGAATGCTGG  
 GATTATAAGACGTGAGCCACCGCATCCGACTTTCTTTATGTAATAGTATAATTCTATCCAAAGCATT  
 TTTTTTTTGAGTCGGAGTCTCATTCTGTCAACCAGGCTGGAGGGTGGTGGCGATCTGGCTTACTGCAA  
 CCTCTGCCTCCGGGTTCAAGCGATTCTCCTGCCTCAGCCTCTGAGTAGCTGGAATTACACACGTGCGCCA  
 CCATGGCCAGCTAATTGTATTAGTAGAGACGGGTGTACCAATTGGCAAGCTGGCCTCGAACCTC  
 CTGACCTCAGGTGATCTGCCGCCTCGCTCCAAAGTGTGGGATTACAGGTGTGAGCCACCGCGTCT  
 GCTCCAAAGCATTCTTCTTCTATGCCTCAAACAAGATTGCAAGCCAGTCTCAAAGCGGATAATTCAAGAGC  
 TAACAGGTATTAGCTTAGGATGTGGCACTGTTCTAAGGCTTATATGTTAAATACATCATTAAACTCACA  
 ACAACCCCTATAAAGCAGGGGGCACTCATATTCCCTCCCCCTTATAATTACGAAAATGCAAGGTATT  
 AGTAGGAAAGAGAAATGTGAGAAGTGTGAAGGGAGACAGGACAGTATTGAAAGCTGGCTTGGATCACTGTG  
 CAACTCTGCTTCTAGAACACTGAGCACTTTCTGGCTAGGAATTATGACTTTGAGAATGGAGTCCGTCTT  
 CCAATGACTCCCTCCCCATTTCCTATCTGCCTACAGGCAGAATTCTCCCCGTCTGATTAAATAACCTCA  
 TCTTCTAGAGTCTGCTTATACCAGGCAATGTACACGTCTGAGAAACCCCTGGCCAGACAGCCGTTTAC  
 ACGCAGGAGGGAAAGGGGAGGGGAAGGAGAGCAGTCCGACTCTCCAAAAGGAATCCTTGAACAGGG  
 TTTCTGACTTAGTGAACCCCGCCTCTGAAAATCAAGGTTGAGGGGTAGGGGACACTTCTAGTCGA  
 CAGGTGATTCTGATTCTGGTGGGCTCTCACAACTAGGAAAGAATAGTTTGCTTTCTTATGATTAAAAGA  
 AGAAGCCATACTTCCCTATGACACCAAACACCCGATTCAATTGGCAGTTAGGAAGGTTGTATCGCGGAG  
 GAAGGAAACGG  
 CGGGGGAGCGCGGCTGGAGCAGGGAGGGCGGG  
 CCTCCTTCTGCCAACGCTGGCTCTGGCGAGGGCTGCTCCGGCTGGTGCCTGGGGGGGGGGGGGGGGGG  
 TGGGGCGACTTCAGGGGTGCCACATTGCTAACGTGCTGGAGTTAACGACCTCTCCGAGCACTCGCTC  
 ACGCGTCCCCCTTGCCTGGAAAGATACCGCGGTCCCTCCAGAGGATTGAGGGACAGGGTGGGAGGGGG  
 TCTTCCGCCAGCACCGGAGGAAGAAAGAGGAGGGGGCTGGCTGGTCAACCAGAGGGTGGGGGGGGGG  
 GCGCTCGGCGGCTCGGGAGAGGGGGAGAGCAGGCAGCGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG  
 GGGGAGCAGCATGGAGCCTTGGCTGACTGGCTGGCACGGCCACGGCCGGGGGGGGGGGGGGGGGGGG  
 GCGGGCGCTGCTGGAGGGCGGG  
 GGGTAGAGGGTCTGCAGCGGGAGCAGGGGATGGCGGGCGACTCTGGAGGGACGAAGTTGAGGGGAATT  
 GGAATCAGGTAGCGCTTCGATTCTCCGAAAAGGGGAGGCTTCTGGGGAGTTTCAAGAAGGGGTTTGT  
 ATCACAGACCTCCCTGGCGACGCCCTGGGGCTGGGAAGCCAAGGAAGAGGAATGAGGAGGCCACGCG  
 CGTACAGATCTCTCGAATGCTGAGAAGATCTGAAGGGGGAACATATTGTATTAGATGGAAGTATGCT  
 ATCAGATACAAAATTAACGAACGTTGGGATAAAAAGGGAGTCTTAAAGAAATGTAAGATGTGCTGGGACTAC  
 TTAGCCTCCAATTACAGATACTGGATGGAGCTTATCTTCTTACTAGGAGGGATTATCAGTGGAAATCTGT

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GGTGTATGTTGGAATAAATATCGAATATAAATTTGATCGAAATTATTAGAAGCGGCCGGCGCGGTGCCTC  
ACGCCTTGTAAATCCCTCACTTGGGAGATCAAGGCGGGGGAAATCACCTGAGGTGCGGAGTTGAGACCA  
GCCTGGCCAACAGGTGAAACCTCGCCTCTACTAAAAATACAAAAAGTAGCCGGGGTGGTGGCAGGCGCCT  
GTAATCCCAGCTACTCGGGAGGTTGAGGCAGGAGAACGCTGAAACCCGGGAGGCTGAGGTTGTAGTGAAC  
AGCGAGATGGAGCCACTTCACTCCAGCCTGGGTGACAGAGTGAGACTTTGTCGAAAGAAAGAAAGAGAGAA  
AGAGAGAGAGAAAAATTATTAGAAGCAACTACATATTGTGTTTAACTGAGTAGGGCAAATAAATATA  
TGTTTGCTGTAGGAACCTAGGAAATAATGAGCCACATTGATGATCATTCCAGAGGTAAATATGTAGTTACCAT  
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TTTCAATTCCCTCATTTTGAAACAGAGGTGTTCTCCTCTCCCTACTCCTGTTTGTGAGGGAGTTAGGGGAG  
GATTTAAAAGTAATTAAACATGGGTAACCTAGCATCTCTAAATTTGCAACAGCTGAAACCCGGGAGTTG  
GCTTGTAGTCCTACAATATCTAGAAGAGACCTTATTGTTAAAACAAAAGGAAAAGAAAAGTGGATAG  
TTTGACAATTAAATGGAG

**FIG. 29B**

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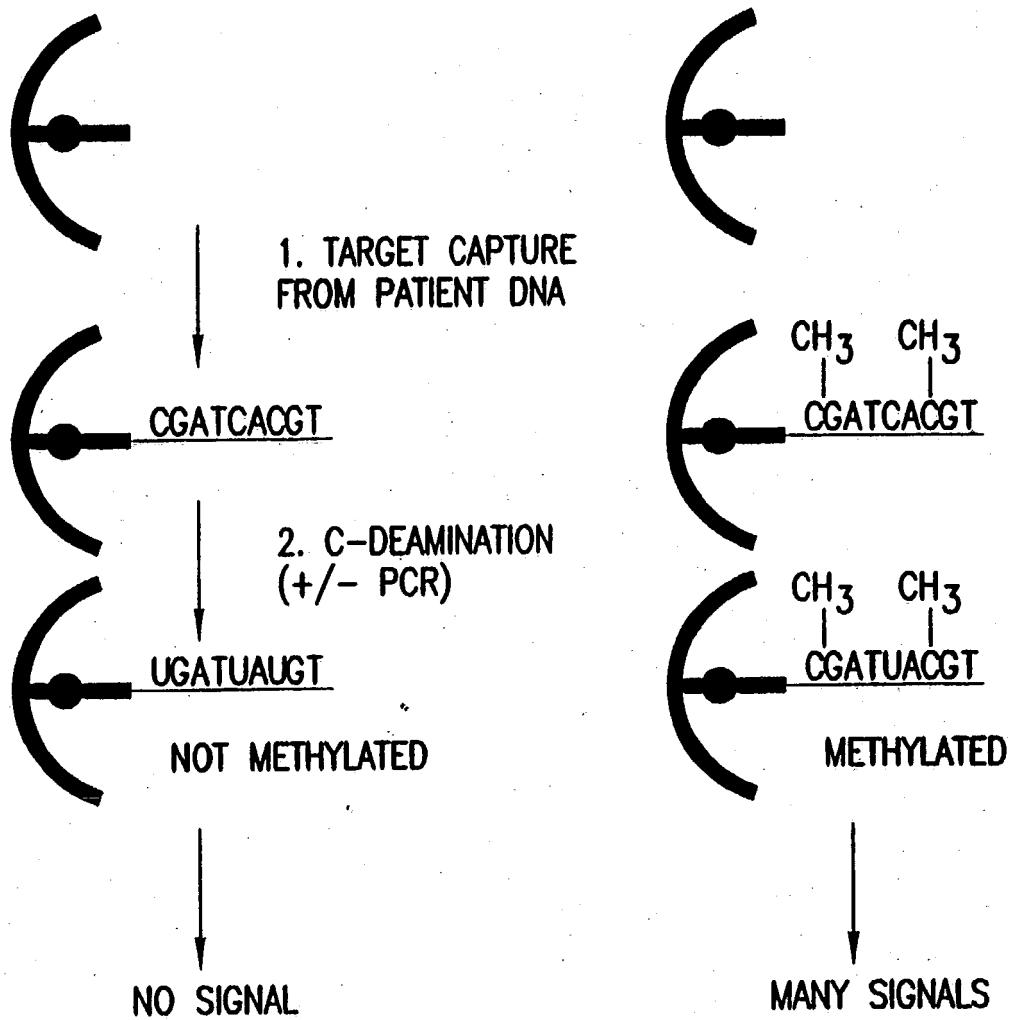


FIG. 30